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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,187	07/21/2004	Egon Hubel	2004-134	5537
27569	7590	05/05/2008		
PAUL AND PAUL 2000 MARKET STREET SUITE 2900 PHILADELPHIA, PA 19103			EXAMINER WILKINS III, HARRY D	
			ART UNIT	PAPER NUMBER
			1795	
			NOTIFICATION DATE	DELIVERY MODE
			05/05/2008 ELECTRONIC	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/502,187

**Applicant(s)**

HUBEL, EGON

**Examiner**

Harry D. Wilkins, III

**Art Unit**

1795

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☐ Claim(s) \_\_\_\_\_ is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of group I in the reply filed on 18 March 2008 is acknowledged. The traversal is on the ground(s) that it would be more efficient to examine both groups simultaneously. This is not found persuasive because of the reasons as previously set forth in the restriction requirement showing a burden on the office to examine both sets of claims together.

The requirement is still deemed proper and is therefore made FINAL.

### ***Drawings***

2. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Interpretation-Means-Plus-Function Language***

3. Instant claim 1 contains the following term written in means-plus-function format, and which has been interpreted as follows:

-“means (17, 18; 21) are provided to reduce an electric voltage that builds up between adjacent workpieces (5, 6, 7) being conveyed through the line” is in means-

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plus-function format to invoke 35 USC 112, sixth paragraph. Although the "means *for*" phrase is not explicitly used here, the language utilized by Applicant uses the word "means", recites a function ("reduc[ing] an electric voltage that builds up between adjacent workpieces") and provides no corresponding structure in the claim to perform that function. The structure indicated by Applicant (17, 18; 21) for performing this function includes either or both of a guard electrode (17, 18) positioned at the entrance to the electrolytic cell and a resistor (21) such that the potential applied to a workpiece at a position closest to the entrance is lower than the potential applied in the rest of the cell. An equivalent structure would function to polarize the incoming workpiece to prevent anodic dissolution of metal from the surface of the workpiece caused by a potential difference between the incoming workpiece and the workpiece already cathodically polarized.

***Claim Rejections - 35 USC § 112***

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.
- See MPEP 2164.08(a). Claim 1 recites only a single means not in combination with any

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other structure. Claim 1 is rejected as having undue breadth under 35 U.S.C. 112, first paragraph.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Zheng et al (EP 1160846).

Applicant's admitted prior art (see pages 1-9 and figures 1-2) teaches a conveyorized plating line for electrolytically metal plating workpieces.

Applicant's admitted prior art does not include means for reducing an electric voltage that builds up between adjacent workpieces at the entrance to the plating line.

Of note is that the admitted prior art indicates that the problem to be solved involves etching of thin seed layers of copper that have previously been plated onto the workpiece caused by the environment inside the electrolyte as the workpiece enters the electrolyte.

Zheng et al teach (see paragraphs 32-42 and 47) that in the art of copper electroplating, problems were known with thin copper seed layers on workpieces becoming etched as they are first immersed in the acidic electrolyte. Zheng et al teach that a known solution to this problem was to have the workpiece electrically biased as a cathode at the time of immersion to offset issues of etching of the seed layers.

Therefore, one of ordinary skill in the art would have been motivated to have added structure to the admitted prior art to cause a cathodic bias to be applied to the workpiece as it is being immersed into the electrolyte as suggested by Zheng et al for the purpose of preventing etching of the already existing thin copper seed layers. Causing the workpiece to be cathodically biased at the time of immersion would have had the function of reducing the electric voltage difference between adjacent workpieces at the entrance to the plating line as one workpiece was entering the electrolyte.

Regarding claim 13, the admitted prior art included a space in which electrolyte fluid accumulated which the workpieces entered and exited as they were conveyed through the line.

8. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's admitted prior art in view of Zheng et al (EP 1160846) as applied to claims 1 and 13 above, and further in view of Hubel (US 5,024,732).

The teachings of Applicant's admitted prior art and Zheng et al are discussed above. The admitted prior art teaches at least one current source providing electric current flow to the workpieces, but does not teach at least one electric compensating resistor provided in the current path leading from the current source to contacting members.

Hubel teaches (see abstract, figures and col. 1, line 46 to col. 2, line 17) that compensating resistors can be included in branched lines in an electroplating process to

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compensate for varying current distributions so that a more uniform current density is applied across the entire electroplating cell.

Therefore, it would have been obvious to one of ordinary skill in the art to have added compensating resistors to the plating line of the admitted prior art for the purpose of ensuring each branch of the contacting members applied a similar current density to ensure uniform electroplating.

Regarding claim 10, the admitted prior art included rails or brushes for electrically contacting the workpieces, and the resistors of Hubel were mounted in series with all of the lines to the different rails or brushes, Even the ones proximate the entrance region of the line.

***Allowable Subject Matter***

9. Claims 2-8 and 11-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
10. The following is a statement of reasons for the indication of allowable subject matter: (claims 2-8) the prior art does not teach or suggest that the means for reducing the electric voltage build up between adjacent workpieces was at least one guard electrode positioned in an entrance region for the workpieces; (claims 11-12) the prior art does not teach or suggest including a variable resistance resistor as claimed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Harry D. Wilkins, III whose telephone number is 571-272-1251. The examiner can normally be reached on M-F 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Harry D Wilkins, III/  
Primary Examiner, Art Unit 1795

hdw